

Logan, Dennis

From: Logan, Dennis
Sent: Thursday, June 24, 2010 7:27 AM
To: Duda, Steve
Subject: RE: Comments and edits on draft Chapter 2 Aquatic Ecology sections of Hope Creek and Salem dSEIS

If you call, I am working at home but will check voice and emails regularly. Andy is out for a few days, and no need to copy him from here on out--I copied him just to let him know that we (well, you) are making what I think is good progress under a tough schedule

From: Duda, Steve [Steve.Duda@aecom.com]
Sent: Thursday, June 24, 2010 6:28 AM
To: Logan, Dennis
Cc: Imboden, Andy; Dillard, Steve
Subject: RE: Comments and edits on draft Chapter 2 Aquatic Ecology sections of Hope Creek and Salem dSEIS

Thanks dennis, steve and I will dive into this and if we have any questions, I'll try and set up a call with everybody

From: Logan, Dennis [<mailto:Dennis.Logan@nrc.gov>]
Sent: Wednesday, June 23, 2010 4:19 PM
To: Duda, Steve
Cc: Imboden, Andy
Subject: Comments and edits on draft Chapter 2 Aquatic Ecology sections of Hope Creek and Salem dSEIS

Steve,

I have reviewed an early draft of Chapter 2 for Hope Creek and Salem that Charles sent me, and I am sending you comments in the hope that you can incorporate them as you do Chapter 4, cumulative effects, alternatives, the biological assessments, and the EFH assessment. Charles also forwarded me have two small sections of Chapter 4, and I will send comments and edits for them later.

Overall, you've done a lot in the limited time allotted you. I have particular concern for organization, focus, and use of citations and referencing in Chapter 2. I have put my general comments on the chapter in "DTL Domments.docx". I have put some specific comments and edits on the several sections in "Chapter 2 V.2 ...docx". I didn't put comments throughout, but tried to put in enough that you would understand my concerns and could take it from there. You can send revised drafts directly to me for review, if you'd like to do that.

Because NRC's method of citation and referencing in SEISs is generally the same as that used in TAFS and other such publications, I have attached TAFS' Guide for Authors (2006) for your reference and refer to it in my general comments.

Although Hope Creek and Salem have three generating units that were submitted to us as two applications, somehow you were allotted only the time normally allocated for a single application. I understand that your schedule is probably unrealistic for the amount of work that has to be done and appreciate the work that you have been doing for us to date.

Please call with any questions,
Dennis

D-101

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**DTL GENERAL COMMENTS ON EARLY FIRST DRAFT OF CHAPTER 2,
AQUATIC ECOLOGY SECTIONS
16 June 2010**

Style

NRC style has been two spaces after the period at the end of a sentence. This is just a little thing, but because of NRC's unfortunate choice of fonts, one space after the comma renders the sentences barely readable. Please fix.

Please check for passive voice and change sentences to active voice. Word offers a grammar checker (similar to the spell checker) that will underline passive voice. Please use it. Also please check for parallel construction when using conjunctions, hanging participles, etc. I found a fair amount of those grammatical types of errors.

Content

The content of Chapter 2 depends on the analysis in Chapter 4. Chapter 2 provides the background information that a reader needs to understand the analyses and conclusions in Chapter 4. When we have Chapter 4, we can pare down and focus the content of Chapter 2.

Organization

A lot of Chapter 2 seems disorganized.

Example. Section 2.2.5.2 organizes plankton as follows: "Plankton can be primary producers (phytoplankton), secondary producers, consumers (zooplankton), and decomposers (bacteria and fungi)." This division needs a literature citation and some definitions because secondary producers and consumers are, I think, synonymous. "Secondary producers" also occurs under "Zooplankton".

Example. Section 2.2.5.1 organizes estuaries according to salinity as:

"Estuarine waters are classified into three categories based on salinity: oligohaline (0 to 5 ppt), mesohaline (5 to 18 ppt), and polyhaline (greater than 18 ppt). These categories describe zones within the estuary. The estuary reach adjacent to Artificial Island is at the interface of the oligohaline and mesohaline zones; thus, it is oligohaline during high flow and mesohaline during low flow conditions."

Section 2.2.5.2 organizes estuaries into upper and lower zones as:

“Species found in the upper estuary are generally freshwater species and those in the lower areas are marine species.” The section does not have definitions of upper and lower estuary or a description of where Artificial Island falls in this classification.

Section 2.2.5.2 then organizes estuaries into three regions according to Versar (1991—originally from an obscure Delaware River Basin commission report) as:

“... (Versar, 1991). This study found that phytoplankton formed the basis of the primary production in the estuary, contrary to the studies related to the Salem facility, which postulated a large detrital contribution to trophic dynamics. This study divided the estuary into three regions: bay, mid-estuary or transitional, and tidal fresh.” The Section has no definition of DRBC/Versar’s regions or any statement relating the location of Artificial Island to those regions.

If we are going to use three systems, we should state where they came from, why we are using them, and where Artificial Island falls within all systems. Better not to use three systems, though.

Example. The zooplankton section initially classifies zooplankton as either holoplankton or meroplankton, and gives definitions. The section later introduces “macroplankton” without a definition or relationship to holo- and mero-plankton. It later introduces “ichthyoplankton” without definition or relationship to the other divisions. Please organize the discussion and provide standard definitions with appropriate references and relationships up front.

Example. Many of the life histories jump around in the information they present. One method of organization is to go from the general to the specific: Start with the geographic range of the species, description of the species and its life stages and work to the autecology. I sent our informal guidance on how we do life histories. It is probably best for the reader to arrange the information the same way for each species. These are also too long for the purposes of Chapter 2; two paragraphs per species will do. If we need more information, we can include an appendix.

Example. The text has no bridges to the life history information. We should tell the reader why this life history information is important for understanding the effects of the plants and how we chose these species.

Focus

Chapter 2 is lengthy and includes descriptions of species marine and freshwater species, habitats, and ecology that do not seem to be potentially affected by operation of Salem and Hope Creek. Please focus on those species, habitats, and ecology that are potentially affected one way or another by the plant. In the terms of ecological risk assessment, Chapter 2 should focus on the “potential receptors” for the stressor (operation of the cooling water systems of the

three units). We have no need to describe the ecology of the whole bay unless it will figure as a receptor in Chapter 4.

Literature Citations and References

Literature citations in this draft are sloppy, partly because references are typically at the end of passive voice sentences rather than having authors be the subjects of active voice sentences. Make sure the text clearly identifies whose work, information, or conclusions you are discussing. For example, under benthic invertebrates, I found at random:

“Overall, densities of benthic macroinvertebrates in the Delaware Estuary are lower than in other east coast estuaries and generally are below 1,000 individuals per square meters (m²). Secondary production, however, appears to be similar to other estuaries, with the bivalves *E. directus*, *Mytillus edulis*, and *Tellina agilis* and the polychaete *Asabellides oculata* responsible for most of the energy produced (Versar, 1991).”

The following is better:

Maurer et al. (1978, reviewed in Versar 1991) reported that densities of benthic macroinvertebrates in the lower Delaware Estuary are lower than in other east coast estuaries and concluded that secondary production must also be low. Howe and Leathem (1984, reviewed in Versar 1991) later found that monthly macroinvertebrate production at one lower Delaware Bay location was primarily due to three bivalve and one polychaete species and comparable to that reported from other estuaries.

By making the authors the subjects, the latter is more accurate and tells **who** did the work, **when** they published, and **what** they found. Note that Salem and Hope Creek are probably not in the lower estuary (depending on definition), so the value of this information to our story is tenuous unless you link it to Salem and Hope Creek (which was not done).

I have included a copy of Transactions of the American Fisheries Society (2006) Guide to Authors, which is typical of the style NRC uses. The **References** section on page 273 provides very good guidance.

Significant Figures

When converting units, pay attention to significant figures. For example in section 2.1.7.2 *Surface Water*, “66,000 gpm” does not accurately convert to “249,836 lpm”—it converts to 250,000 lpm.